

MUSEUM STORIES
FOR
CHILDREN

SERIES X
NUMBER ONE
FEBRUARY 23, 1929

FIELD MUSEUM OF NATURAL
HISTORY
ROOSEVELT ROAD AND LAKE MICHIGAN
CHICAGO

FIELD MUSEUM OF NATURAL HISTORY

On the porcelains, fans and tapestries in Hall 24 and Hall 32, are designs similar to those used by the Chinese in decorating their kites.

STEPHEN C. SIMMS, *Director*

CHINESE KITES

Spring with its sunshine and balmy winds challenges us to many kinds of outdoor sports. It is the time when the vacant lots become aviation fields where men and boys, as in days of yore, try their skill with diamond-shaped structures of paper and wood.

Kite-flying dates back to ancient times when the Chinese invented the first kite. At that time, it was not an object used in national pastime, but a device used in giving signals in warfare. There are records of its use as a means of frightening an enemy at night, of calculating distances to an enemy's camp, and of its use as a signal of distress from a besieged fortress.

About the tenth century of our era, began its use in recreation. Both men and boys indulged in the sport. The boys were encouraged from early childhood to take part in kite-flying as it made "them throw their heads back, and open their mouths, thus getting rid of internal heat."

Chinese kites are quite different from the frail structures we ordinarily see flown in our open spaces. On a light, elastic, bamboo frame is stretched a piece of strong rice paper or thin silk painted in bright colors. The designs are often quaint and fantastic, but most artistically conceived.

Shapes are numerous and varied. The most popular forms resemble figures of beings and monsters famous in their legends, of dragons, birds of prey, serpents, frogs and fishes, butterflies and centipedes. Occasionally, the artistic object floating above the housetop is the likeness of a beautiful woman, of a popular actor, or of a hero of the day. On festival occasions flower baskets and boats soar heavenward vying in color with the pheasant walking so sedately over the ground below.

Both shapes and colors are cleverly worked out. Seen before flight, Chinese kites frequently appear grotesque and out of proportion. Riding gracefully at the end of tough cords wound over reels in the hands of skilful manipulators, those same structures appear beautiful and lifelike.

It is interesting to notice that the Chinese word "kite" (yüan) is preserved in our English word. The kite is a variety of hawk which spends much of its time hovering in the air searching for its insect and mammal prey in the field beneath.

The principle used in developing the "paper flying-machine" is exactly the same as that of the soaring bird. By the use of curves and warped surfaces, movements similar to those of the living object are secured.

A famous "centipede kite" illustrates the means used to secure an accurate likeness. It is constructed of twenty-five discs, each one foot in diameter. Cords are so placed that they hold the discs apart. At the rear is a cluster of streamers forming the tail. The kite is forty feet long and so heavy that several men are required to raise it from the ground. Cords are attached to three or more parts of the body to keep it under control. Once up in the air the monster with bulging eyes and protruding horns pulls and writhes just as a living serpent would if held in leash.

In the old days, the position of kite-maker was an honored one. Li Ye, who was kite-maker to one of the emperors, became famous by inventing a musical kite. He fastened a bamboo flute to a kite's head. When flown so that the wind struck the holes of the flute in a certain way, the music produced was similar to that of a harp. It was somewhat mournful and could be heard at a great distance. Such kites were sent up to scare the evil spirits from the air.

Another type of kite produced music by means of a bow of light willow wood or bamboo strung with a silken cord. As the wind struck the bow, a humming sound like that of an Aeolian harp filled the air.

The ninth day of the ninth month is "Kite-day." Then eager groups ascend some hill to hold contests. The latter are thrilling, for any kite, no matter to whom it may belong, may be brought down. To do this a mixture of crushed glass or porcelain and glue is applied to the cord near the kite. The contestants then strive to get to windward of the opponent so that the stiff string may cut through that of the one flying the desired prize.

Night time on such a festival occasion is a gala time. Paper lanterns, lighted by candles within, swing from small kites in the shape of butterflies. These are attached to a large kite. The children watch these with glee for they know that the little bamboo cases attached to the cords holding the large kite in place, have firecrackers hidden inside and that they will be sent to the top where they will explode into brilliant stars or a basket of flowers.

When constructing your kite this spring, bear in mind the artistic structures of the Chinese and see what you can do.

MARGARET M. CORNELL, Guide-Lecturer

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FIELD MUSEUM OF NATURAL
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FIELD MUSEUM OF NATURAL HISTORY

In Hall J, on the ground floor, you can find mummies,
a real boat that once floated on the Nile, and many other
beautiful and interesting objects made by the Egyptians.

STEPHEN C. SIMMS, *Director*

FARMERS OF THE NILE

Egypt is different from any other country in the world. It is a country made by a river. Other rivers, like our own Mississippi, are important to the people living near them, but without the Nile River there would be no country of Egypt. Across the barren deserts of northeastern Africa the Nile has cut a deep valley. It has covered the floor of that valley with good black soil washed down from the highlands of Abyssinia. Where the river reaches the Mediterranean Sea it has in the course of ages filled in a bay with a great triangle of rich earth, more than a hundred miles across. With the triangle, called the Delta, and the strip of soil in the valley, which is seldom more than ten miles wide, the total expanse of good farming country in Egypt is about equal to the area of our own state of Maryland. For thousands of years that soil has been cultivated, but it remains fertile, because the yearly flood of the Nile spreads a new coating of soil over the fields, supplying fresh food for the roots of each year's crops.

It seldom rains in Egypt, sometimes only once in several years. Without water the good soil would be as barren as the desert above it, but there is always the river. Day after day for years and thousands of years Egyptian farmers have been working their shadufs, or sweeps, lifting buckets of river water to irrigating pools and canals, and spreading it over their fields.

Thousands of years ago Egyptian farmers were raising wheat in their fields. When people died it was believed that they might still need food in a life beyond death. So when the family of a dead person buried his body in a pit-grave or tomb on the edge of the desert they put beside him some pottery jars of wheat. The dead man never really ate the food, and people now sometimes dig up such graves and find the jars with the grain still in them. In Hall 25 of Field Museum you can see some of that ancient wheat, and also some very old Egyptian bread. Those early farmers also raised barley, various vegetables, and many kinds of fruit, especially grapes, pomegranates, dates, and figs.

Poor farmers lived in simple huts of sun-dried bricks. Their rulers and other rich people had large and comfortable houses of the same material. But for their gods they built great stone temples, and for themselves when they died they made stone tombs. Ruins of these buildings still stand. The famous pyramids are among the most wonderful buildings in the world, and they are the tombs of great Egyptian kings.

People were so sure that they would go on living after death, and that they would continue to need the things they needed in life, that they made great preparations in their tombs. It was believed that the dead person needed spirit of food to eat, spirit of clothes to wear, and spirits of servants to wait on him, rather than the actual food, clothing, and servants. Through magic these spiritual needs could be supplied just as well by pictures and images left in the tomb as by the real things. So tomb walls were covered with pictures, and images of stone, clay, or wood were left in the inner rooms. In the Egyptian room on the ground floor of Field Museum you can see pictures, tiny figures of servants making bread or pottery, clay and stone models of loaves of bread and pieces of meat, and even tiny models of buildings, all from real Egyptian tombs.

In the earliest days Egypt was not a real nation, but a string of tribes and villages scattered along the valley. In those days people did not travel much, but they went fishing or hunting crocodiles or hippopotamuses in light rowboats. They even had sailboats. Later, when one king ruled all Egypt, and people went from one end of the country to the other trading or on government business, the river was their highroad. So important was the stream to their movements that the Egyptian word for north meant downstream, and their word for south, upstream. Far upstream early explorers traveled until they came to a country of jungles, elephants, lions, and wild black men. They sailed their boats up the Nile, using the prevailing north wind of Egypt, and rowed them back again loaded with ivory, hides of beasts, and forest men to become slaves. In the Egyptian room of Field Museum is a real Nile boat of cedar wood. It was made nearly four thousand years ago. You can also see a model of a boat, with figures of rowers sitting along the sides.

If you should go to Egypt now, you would find the people still using their river as their highroad, traveling in tiny boats with tall sails, or with big stern wheels churning the water faster than the oars of slaves of long ago. You would find farmers still cultivating their fields of black Nile mud, and watering them by means of shadufs. You would see the great ruins of stone temples and tombs, and the poor people still living in little mud brick huts, just as they have been doing for thousands of years.

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SERIES X
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MARCH 9, 1929

FIELD MUSEUM OF NATURAL
HISTORY
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FIELD MUSEUM OF NATURAL HISTORY

On the second floor, in Hall 28, are to be seen many kinds of crude rubber. Perhaps you can find the kind used in making your raincoat.

STEPHEN C. SIMMS, *Director*

RUBBER PRODUCING PLANTS

Have you ever wandered along a country road or across a field and suddenly pulled a leaf from a common milkweed stalk, only to find your fingers coated with a thick, milky fluid? If you have, your next move was an attempt to remove that same liquid from your hand. To your dismay, it clung closely and hardened as the heat of the fingers evaporated the moisture in the queer, white substance.

That substance was latex, the same kind of juice as that used in the manufacture of your rubber shoes, the golf balls, the automobile tires and the battery cells in your radio.

Floating in the liquid are globules of rubber and when the liquid is evaporated, the rubber particles set or "coagulate."

Many kinds of plants produce this latex. Some are herbs, some are shrubs, others are vines or trees. The fluid may be located in the stems, the leaves, or between the wood and the bark.

Had we patience enough we could secure a fair quality of rubber from the daisies, poppies and periwinkles growing in our own gardens. The blue-eyed periwinkle is first cousin to a tree that grows wild only in Africa. Its seeds are unusual. Each carries a beautiful, silky plume about two inches long. By means of these plumes, the seeds travel to new areas of growth, where the tree is known as the "silk rubber tree." To obtain the latex, a native climbs slowly up the tree, cutting a long, vertical gash as he ascends. When he descends, he cuts side gashes meeting the central trough at an angle of 45 degrees. This is known as the "herring-bone system of incision," and is used on many of the large plantations.

Warm African forests are filled with gorgeous ferns and climbing vines. One kind of vine is large and woody. Its flowers are like our jasmine, and its fruits are brightly colored. This plant, too, is a cousin of the periwinkle and good rubber is secured from its latex.

The common "rubber plant" which grows in flower-pots in our houses and stores grows wild in Assam. Its curious shape always excites interest. It is related to our common edible fig. The birds carry the fruits into the trees where the seeds lodge in holes or forks. If conditions are favorable, the seeds sprout and soon tiny plants are sending their aerial roots towards the ground. Some take hold and in time become trunks and finally completely envelope the supporting tree. The common name "india rubber" was assigned to the first production of rubber from this tree early in the nineteenth century.

Who does not know the juicy mulberry which grows in all the parks of the city? Throughout Mexico, Central America, the West Indies and along the west side of the Andes as far south as Peru grows a giant mulberry which often reaches a height of 150 feet. The latex of this tree has been known to science longer than that of any other rubber yielding plant. It, too, grows in the deep, loamy soil near the banks of streams. Its seeds are so thin-walled that they are killed if sown on exposed ground, and yet the natives of Trinidad succeed well in its culture.

Another well-known rubber is the Ceñara. It grows only in hot countries where it shoots up with great rapidity in soil that is poor and rocky. The latex flows freely and coagulates immediately on exposure to the air. The milky fluid is allowed to trickle down the trunk and form into tears or strings. The rubber secured in this way is dry, elastic, free of stickiness and of good quality, but the process is too slow to be commercially valuable.

The most important source of the world's rubber supply is the Hevea tree which grows wild in the hot, steaming forests of the Orinoco and Amazon valleys. The temperature averages between 70 and 80 degrees, and the rainfall is around 100 inches a year.

This is the tree which has been introduced into Ceylon and other eastern lands. It is raised with great success on plantations where frequently as many as 290 trees may be planted to the acre. The tree reaches a height of 60 feet and often the trunk has a circumference of 10 feet. Its curious black and brown mottled seeds prove it a relative of our castor-oil bean, and of the cassava plant from whose fleshy roots is made our tapioca.

When the tree is five years old, it is ready to be tapped. The latex is secured by tapping the trees at night and collecting in the morning. In the old days, cups of calabash gourds or of clay were used to hold the latex. The liquid was put upon paddles which were held in the smoke of a fire into which nuts of palms had been placed. These produced a dense smoke containing acetic acid and creosote which caused the latex to set rapidly.

The modern method used on large plantations is to keep the latex liquid long enough to strain it. Shallow dishes are then used for the coagulating process. In these is formed the well-known "Para biscuits," the purest of all rubbers.

Such are the chief plants which have played so large a part in the great rubber industry.

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MARCH 16, 1929

FIELD MUSEUM OF NATURAL
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FIELD MUSEUM OF NATURAL HISTORY

Look in Hall 2, on the main floor, for some of the things used by the Romans and Pompeians. Notice how some of them resemble our own dishes and furnishings.

STEPHEN C. SIMMS, *Director*

A BURIED CITY

Eighteen hundred and fifty years ago Rome was the greatest city of the world, the capital of an empire that included Egypt, Greece, Spain, and the southern half of Great Britain, as well as many other lands. The present sites of New York and Chicago then were wilderness, and even London was an obscure village. In all the centuries from that time to the present people have been living in Rome, houses have been built and torn down and rebuilt, and new ways of living have replaced old ones.

But eighteen hundred and fifty years ago there was a small city called Pompeii, in which people were living much as people lived in Rome, and no new houses have been built in Pompeii, and no people have lived there since the year A.D. 79. In that year the volcano Vesuvius awoke from a sleep of thousands of years. An explosion blew off the whole mountain top, filling the sky to a tremendous height with dust and ashes and broken pumice stone that rained down over the surrounding country during two days, until the town of Pompeii and all the farms and villages near it were buried. After that the town was forgotten until about a hundred years ago. Now much of it has been dug out of the covering that hid it for so long. If you should go to Italy this year, you would probably visit Pompeii and see how people lived there eighteen hundred and fifty years ago. Ancient stone-paved streets have been cleared so that you can walk where the carts and wagons of the Romans have worn ruts in the pavement, and step on the stepping stones that kept the Roman ladies' sandaled feet out of the wet on rainy days. Unroofed houses still hold furniture, and paintings on the walls, and cooking utensils in kitchens that remain as they were when the cooks ran out in terror on that August day in 79. Even the water pipes that supplied the houses and fountains in the gardens are still in place. Some of them have been cleared so that they can be used to carry water, and the old fountains play again.

If you had walked around the outside of a Roman house, you would have seen no front yard, no garden, no pleasant porches or large curtained windows—only a plain stone or brick wall with one door and a very few high, tiny windows. Perhaps you would find a shop or two opening its doors to the street beside the Roman gentleman's front door. But if you entered, you would find at least one garden inside. Rooms opened big doors and windows to this quiet bit of private outdoors, instead of to the public street. Through a graceful colonnade you could look out to green shrubbery, bright flowers, and splashing water. In the garden were also statues, often copies of famous Greek works of art. On the walls of rooms were pictures, also often copies of Greek work, which were painted on the material of the walls themselves, while it was still fresh (hence these pictures are called frescoes). Sometimes the floors were decorated with pictures in mosaic, made of different colored bits of stone. Since glass was too rare and expensive to be used in windows, unless by the very richest people, there were not so many windows as we have, and some of the rooms seemed dark. The paintings on the walls often represented views through windows, or were colored with light and bright colors to make the house seem lighter.

Since what windows there were must always be open, unless they were closed with shutters or hangings that kept out light as well as weather, there was often need for heating the rooms, even though Italy is a warm country. Most people had open metal pans standing on four feet, and holding charcoal fires. Very rich people sometimes had hollow walls and floors in which circulated air heated by a furnace. After dark wax or tallow candles, or lamps of pottery or bronze burning olive oil, furnished light.

In their pleasant dining rooms, which usually opened into the garden, people arranged cushioned couches around tables, and ate lying down, resting comfortably on one elbow. They ate many vegetables familiar to us, as well as beef, pork, fish, and poultry. On special occasions a peacock might be served. It was skinned before being cooked, and afterwards carefully replaced in the skin with all the feathers, so that it was brought into the dining room looking as if it were alive. Dishes were of pottery, bronze, silver, or beautifully colored glass.

In Field Museum you can see some of the things that these people used—dishes, lamps, and furniture, even some pieces of walls with frescoes on them. Look in Hall 2 for reproductions (exact copies) of objects found in Pompeii, and original objects from Pompeii and Boscoreale, a village about two miles from Pompeii.

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FIELD MUSEUM OF NATURAL HISTORY

On the second floor, in Hall 34 and in Hall 38, are to be seen some fine specimens of fossil wood and impressions of leaves, and stems, stumps and fruits. See if you can locate the maple leaves in Hall 38.

STEPHEN C. SIMMS, *Director*

FOSSIL TREES

Have you a piece of fossil tree among the rocks in your collection at home?

Once upon a time, that rock was part of a tree growing in some favorable locality. It grew from a seed into a sapling. It struggled with its neighbors for its share of the food in the soil, and lifted its leafy top towards the sun—the giver of power and warmth. That sun worked upon the crude sap, changed it into sugar, fat and starch to nourish the growing buds, leaves and twigs. In time, the tree towered above other plants in the forest.

Then a great change came over the region, and when it had passed, the trees no longer stood as living, breathing objects of beauty. They were but ghosts of their former selves.

Perhaps, your bit of petrified wood came from Yellowstone National Park. It was a living tree back in ancient Miocene times when the Titanotheres and small three-toed horses roamed over the land to the west. That was the period when the region known as the Rocky Mountains was slowly rising to form a great rock barrier between the plains and the Pacific Coast. Folds of rocks dropped back upon each other, or crumbled in masses. Hot gases and ashes from the volcanoes filled the air and choked the life from the growing trees. Then the rain fell in torrents again and again.

Similar outbursts occurred over a period of time. The forests once clothed in trees lay buried beneath great depths of volcanic ash.

Ages passed. Winds and frost and running water uncovered the stark and naked trunks of those trees of Miocene times. Gone are the leaves and twigs, yet so accurately has Mother Nature preserved the forms of those former children of her's that men are able to study their structures in detail.

If you cut a section of petrified wood and put it under a microscope, you will see what were once living tissues. As the volcanic gases smothered the trees, they absorbed the sap from the cells and veins. Then water carrying minerals in solution took the place of the sap. Gradually much of the moisture evaporated. Bit by bit, the various parts of the tree were replaced by silicic acid, by calcium and magnesium carbonate, pyrite, marcasite or limonite.

Sometimes, the entire plant was replaced by minerals. The complete story of the climate, the seasons and other facts may be revealed by such a study. Even threads of fungus may be traced and we learn what parasites preyed upon the trees in those far away days.

Sometimes the pieces of petrified wood have beautiful calcite or silica crystals within.

There is another way in which some of the great trees of the past have been preserved for us. That is by being inclosed in clay, or in fine volcanic ash which happened to fall into water where the plants were growing. It was by this method that the sequoias, rivalling in size the present big trees of California, were preserved in a lake at Florissant, Colorado. They flourished at the time American camels and fleet-footed rhinoceroses roamed over the western plains.

Along the coast plain of the Atlantic Ocean are fossil cypress swamps, where the standing stumps are frequently as much as ten feet in diameter. The bald cypress of Santa Maria del Tule in southern Mexico is said to be the oldest living tree in the world. Its age has been given as close to 6,000 years. It is held in great veneration by all the people. Still vigorous and healthy, it is a good example of the bald cypresses that grew in the swamps along our coasts when primitive mammals were replacing the great reptiles known as "Dinosaurs."

The Petrified Forest in Arizona is one of the natural wonders of the world. The area has been made into a national park where the government will protect the remains of the trees which belong to another age of our history. The preserve covers many thousands of acres and contains vast deposits of petrified wood. Specimens vary from tiny splinters to huge sections. And yet not one of the trees found there grew on the spot.

Somewhere else those forest giants fell to the ground and were carried by a great flood to their resting place. Then minerals in the soil colored the water. For centuries upon centuries, the trees lay submerged until all vegetable parts were replaced by minerals which gave the beautiful colors and crystals which make your specimen of fossil wood so beautiful to look upon.

In the Ernest R. Graham Hall on the second floor, you may see fossil figs which grew in Kansas, the trunk of a sigillaria and many fossil leaves from such trees as the maple, poplar and magnolia.

MARGARET M. CORNELL, Guide-Lecturer.

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FIELD MUSEUM OF NATURAL HISTORY

After the motion pictures are shown be sure to go to Hall 28, on the second floor. There you may see the bark of the cork oak tree, and many objects made from it.

STEPHEN C. SIMMS, *Director*

CORK

In southern Europe and along the coasts of northern Africa grows an unusual oak tree which provides the cork for our bottles and the filling of our life preservers. The bark from this tree has been used for various purposes for over two thousand years.

This kind of oak is an evergreen—that is, it does not shed its leaves at the end of the growing season as do those oaks to be found in the parks and woods around Chicago, and its bark is very different in appearance and texture. I am sure you would not care to taste its acorns for they are exceedingly bitter, but hogs fed on them produce the famous “mountain hams” noted for their excellence.

The cork-oak grows in hot, semi-arid forests. Sometimes, its companions are firs, but frequently a whole area will be covered entirely with cork-oaks.

In Spain and Portugal, where the trees are cultivated, the people care for them with great diligence. Not until the tree is fifteen years old, will they allow the bark to be stripped off. Each year during that growing process, a new layer of soft, elastic, easily compressed material has been added between the sapwood and the outer bark.

The first bark coat is known as “virgin cork.” It is rough and woody and is used chiefly for tanning leather.

Ten years after the first stripping, the second coat is removed. This layer too, is still coarse. Yet it is very good for making floats for fishing nets. As the Spanish and Portugese are famous fishermen, these are important items in their industry. In some parts of Spain, walls of houses are lined with cork, which renders them warm and prevents the admission of moisture.

When another ten years has passed a third coat is removed. Each time it is better than the preceding time. As the tree lives to be 150 years and more old, the greater its age the closer-grained and more elastic the corks made from its bark.

To remove the bark without injuring the tree itself is the work of an expert.

During July and August, the stripping process takes place. With a specially-shaped, wedge-handled knife, or a crescent-shaped saw, a circular cut is made just above the ground and another just below the branches. After girdling the tree, lengthwise cuts are made dividing the bark into three or four sections.

Then using the handles of the implement, these cut strips are gently pried away from the inner bark which is tender and easily injured. The sections are then ready to be prepared for market.

The surfaces are first scraped and cleaned by soaking in water. They are then heated over a fire. The workers press the hot pieces between two flat surfaces. This causes the bark to flatten out, and the pores in the bark to close up. The pieces are then ready to be baled and bound with steel ribbons, and shipped to the various countries which manufacture the cork into useful articles.

Thus is prepared one of the most useful of all wood products.

Before the use of leather for soles of shoes, cork was used as the ground part of the ancient sandals, and the Greeks and Romans used it as stoppers for their wine containers.

Neither air nor water can change its elasticity or its ability to be compressed. As it is light, strong and lasting, it has been used in making life buoys and belts, and in the construction of life boats. Many a shipwrecked person owes his life to the preserver strapped about him ere the boat went down and many an explorer has been thankful for the cork lining of his sun helmet.

Cork is especially adaptable to the making of artificial limbs and arms where there must be considerable strain and the least possible weight. The linoleum on Mother's kitchen floor is another cork product. It is a composition of boiled linseed oil and ground cork applied to canvas.

In Hall 28, on the second floor, you may see a good-sized section of the bark of this valuable member of the oak family, and many articles made from its light, elastic bark.

In a case near the bark, you may follow the various steps in preparing the different sizes of stoppers. Then you may see the interesting use made of the bark for such articles as canes, pictures, insulated covering for cold pipes and even burnt cork used by your favorite minstrel for blackening his face.

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STEPHEN C. SIMMS, *Director*

After the motion pictures are shown be sure to go to Hall 28, on the second floor. There you may see the bark of the cork oak tree, and many objects made from it.

FIELD MUSEUM OF NATURAL HISTORY

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MUSEUM STORIES FOR CHILDREN

SERIES X
NUMBER SIX
MARCH 30, 1929

FIELD MUSEUM OF NATURAL
HISTORY
ROOSEVELT ROAD AND LAKE MICHIGAN
CHICAGO

MUSEUM STORIES
FOR
CHILDREN

SERIES X
NUMBER SEVEN

APRIL 6, 1929

FIELD MUSEUM OF NATURAL
HISTORY

ROOSEVELT ROAD AND LAKE MICHIGAN
CHICAGO

FIELD MUSEUM OF NATURAL HISTORY

In Hall 21, near the case showing Bobwhite, you may see the Golden Plover. Then go to the Habitat case at the west end of Hall 20. There with many other kinds of shore birds are red-billed, red-legged gray birds with long, narrow skull caps of black. They are the Arctic Terns, the famous long distance fliers.

STEPHEN C. SIMMS, *Director*

CHAMPION FLIERS

This is the time of year when the feathered folk are returning to the north after a winter of feasting and resting among the trees and flowers of a more congenial climate in the south.

Some of them will stop in our own lake region to build their nests and raise their families; others will continue their flight until they reach the barren stretches of the far northland. Among the latter group, are two champions worth knowing.

The Golden Plover arrives in his summer home about the first of June while the lakes are still covered with ice. That does not bother him in the least. He flies across the Arctic Circle and somewhere beyond the tree line sees a shallow place in the barren ground. That is what he needs. No tree branch for his home!

Gradually, that hollow, only a few inches above the frozen ground, is lined with mosses. Then four eggs heavily splotched with brownish-black are laid and the real duties of that mother and father begin.

By the time the eggs hatch, the ground is warm and food plentiful. The fluffy youngsters grow rapidly and the soft down gives way to stiff feathers capable of sustained flight. A journey to Labrador is planned, as soon as the baby plovers are able to care for themselves. It is there they feed on the wild grasses and fruits of the marshes, and grow fat.

Then one day a signal is given. A short trip across the Gulf of St. Lawrence brings them to Nova Scotia, the starting point of their trip to South America. If the weather is fair, the Golden Plovers fly past Bermuda, past the group of islands known as the Antilles—straight to the coast of northern South America. If you look at your geographies, you will see that the distance from the coast of South America to Nova Scotia is 2,400 miles. Many Golden Plovers have made that trip without pause or rest. How many days they fly is not known. Most birds that migrate from one area to another fly at night and rest during the day, but the Golden Plover flies both day and night.

After a short rest on the coast, the journey is resumed to the pampas of Argentina where for six months they live a life of ease with no family cares to worry them. They have earned that rest for no other bird is known to take such a long flight without stopping.

One of the most fascinating birds to watch is the tern. As it swoops down to the lake shore in search of food, we study its wing action and marvel at the ease with which it makes sharp turns and rises again. This common tern, familiar to Chicagoans, has a famous cousin in the far north, known as the "Arctic Tern" and well does it deserve the name.

This tern builds as far north as it can find land or anything stable on which to place its nest. If no building material is handy, a hollow in the sand, gravel or moss may serve the purpose. But a grass-lined nest on the rocks is better, with pebbles or bits of granite to hold it in place.

One nest was found only $7\frac{1}{2}$ degrees from the North Pole. In it was a downy chick surrounded by a wall of newly fallen snow that had been scooped out of the nest by the parent bird. Usually two irregularly spotted eggs are laid, sometimes three.

As soon as the little terns are able to leave the nest, the parents teach them to catch food. With outstretched wings and down-turned bill and head, they fall from a height of 30 or 40 feet with the speed of an arrow, strike the water with a splash, and often disappear completely below the surface in order to catch the fish or sand eels upon which they feed. As they rise from the water, they shake their feathers and scream out, but seldom drop their prey. If it should be dropped, it is caught before it has gone more than a few feet. They are extremely noisy birds and will fly viciously at an intruder.

When the young are fully grown, the entire family leaves the Arctic region, where there has been no darkness. Several months later we find the same birds skirting the edge of the Antarctic continent. There too, the sun does not drop below the horizon for several months. Thus fourteen weeks in their nesting home beyond the Arctic Circle and about the same length of time in their winter home in the Antarctic region gives to the Arctic Tern more daylight than any other animal on earth. To secure that long period he must fly a distance of 11,000 miles.

No one knows just what the track over the space is, but we do know that the Arctic Tern is the World's Migration Champion.

MARGARET M. CORNELL, Guide-lecturer

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CHICAGO
ROOSEVELT ROAD AND LAKE MICHIGAN

FIELD MUSEUM OF NATURAL
HISTORY

SERIES X
NUMBER SEVEN
APRIL 6, 1929

MUSEUM STORIES
FOR
CHILDREN

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STEPHEN C. SIMMS, *Director*

MUSEUM STORIES
FOR
CHILDREN

SERIES X
NUMBER EIGHT

APRIL 13, 1929

FIELD MUSEUM OF NATURAL
HISTORY

ROOSEVELT ROAD AND LAKE MICHIGAN
CHICAGO

FIELD MUSEUM OF NATURAL HISTORY

In Carl E. Akeley Memorial Hall (Hall 22) are African wild asses and zebras, wild cousins of the horse. See how many pictures and models of horses and donkeys you can find in the Museum. Look especially among the Chinese collections on the second floor, and the carvings in the case above the mummies in the Egyptian Hall.

STEPHEN C. SIMMS, *Director*

HORSES PAST AND PRESENT.

If it is a sign of distinction to know who your ancestors were for a long way back, the horse and his cousins the ass and the zebra form an extremely distinguished family. Their ancestry has been traced in an unbroken line some fifty-five million years—almost all the way back to the period when the dinosaurs (terrible reptiles), once supreme on the earth, died out, leaving only a small part of their domain to their little cousins, the crocodiles, lizards, and snakes. As the reptiles diminished in power, the mammals, including the horse's ancestors and our own, began to take possession of their kingdom. Eohippus, the ancestor of the horse, found a home in the fertile valleys of North America where it fed upon soft plants and leaves, and where it found protection among reeds and bushes to keep from being eaten by its carnivorous (meat-eating) neighbors.

Eohippus was an unhorselike animal about the size of a cat. It had teeth not very different from those of a monkey or a pig, good for eating almost any sort of food. In the ages during which the descendants of eohippus lived, they gradually changed from a timid, forest-dwelling animal to one fitted for life on the plains. Their teeth became adapted to feeding on hard, tough grass. Their feet, which had been broad and thus useful in supporting the animals on soft, marshy lands, gradually changed to slender, single-hoofed feet. The animals grew tall, strong, and swift-footed. In Case 22, near the south end of the west wall of Stanley Field Hall in Field Museum, are some models and bones which with their labels will help you to understand how these changes took place.

The teeth of a modern horse are among the most wonderful things in the world. The long, sharp front teeth are so placed and shaped that they can nip off the stems of grass right down to the roots. The grinding teeth, or molars, have a complicated system of sharp edges and ridges of extremely hard enamel supported on either side by materials which, being not quite so hard, wear down slightly faster than the enamel. Thus as it slowly wears away, the tooth continually sharpens itself. At the same time these molars, which in a young horse are very long and deeply embedded in the jaws, slowly push out to compensate for wear. So, though a horse's teeth are always wearing away, they never wear out until he is thirty-five or forty years old. Few horses live that long.

As they had plenty to eat, the horse ancestors increased in size. At the same time their legs became longer in proportion to their bodies. Long legs will help an animal to run fast only if they are also strong. The horse's legs are hung on joints like hinges or pulleys, rather than on the ball-and-socket type of joint which makes it possible for us to reach our arms in any direction. The horse can kick only forward and backward, and his leg joints are stronger because of that arrangement. From running on tiptoes, and especially on the tip of the middle toe of each foot, the horse family gradually lost the side toes and developed a round, hard hoof on the middle one. Study the models and bones in Case 22 and see if you can see any other changes and the reasons for them.

As they became large, strong, and swift, horses spread over the greater part of the world, wherever they could find suitable places to live. Often they met our ancestors, early men, also developing, changing, and learning. At first men hunted horses for meat. In the passage between Hall 2 and the Indian halls to the east is a case containing the skeleton of a man who hunted horses in France about twenty-five thousand years ago. In the same case are pictures of carvings of horses made on the walls of the cave in which the skeleton was found. Perhaps that very man helped to carve them.

It was in Asia that horses were first tamed and taught to work for men. About thirty-five hundred years ago they were brought into Egypt. Probably the Egyptians were not much surprised at the horse, for they already knew the usefulness of his little cousin the ass or donkey. Apparently horses were first used to draw war chariots, and then for riding. The tribe which had horses when its neighbors had none, or had better horses than its neighbors, had a great advantage, both in war and peace. Our American Indians learned this when white men taught them to use horses. At the southwest corner of Hall 5 is a case of saddles, leather horse-shoes, and other horse equipment used by plains Indians.

Long ago people discovered that they could use horses for play as well as for work. You have heard of the chariot races of the Romans. The ancient Persians invented a game called polo which spread to Turkey and India, and by the year 600 was being played in China. In Case 7 of Stanley Field Hall are two little pottery figures of Chinese ladies playing polo. The figures are about twelve hundred years old, and are the oldest known representation of this game, which is still played by modern men and their horses.

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MUSEUM STORIES FOR CHILDREN

SERIES X
NUMBER EIGHT

APRIL 13, 1929

FIELD MUSEUM OF NATURAL
HISTORY

ROOSEVELT ROAD AND LAKE MICHIGAN
CHICAGO

MUSEUM STORIES
FOR
CHILDREN

SERIES X
NUMBER NINE
APRIL 20, 1929

FIELD MUSEUM OF NATURAL
HISTORY
ROOSEVELT ROAD AND LAKE MICHIGAN
CHICAGO

FIELD MUSEUM OF NATURAL HISTORY

In Hall 29 on the second floor you will find a large, white Trillium. Other wild flowers can be seen in the Harris Extension cases at the south entrance of the Museum.

STEPHEN C. SIMMS, *Director*

SOME EARLY SPRING WILD FLOWERS

If you want a big treat, get acquainted with the spring wild flowers on sunny mornings in April and May. You will find delicately tinted ones, queerly colored ones, strangely or beautifully formed ones. Look for them in rich, moist woods or open fields.

The early flowers spring from thick roots, tubers, or bulbs. The tubers are thickened ends of rootstocks that bear eyes. The Irish potato is a tuber. If you have ever cut up an onion you have seen how it is made of thickened scales. The onion is a bulb, and the scales are really leaves. The stored-up food in these tubers and bulbs enables the plants to grow early in the spring.

Skunk-cabbage, hardiest of all, is out in March. Don't fail to search for it just because it has a homely name, for you will be rewarded by a fat, jolly little plant. Look for it in swampy places in leafless woods or brown meadows. The previous fall the plant has pierced the ground, so, after lying dormant or asleep all winter, it is ready on the first sunny days of March to push its way through the soil. First a curled-up growth appears above the ground. In shape it resembles a very large snail-shell. It is green, mottled with purple, and is called a spathe. It is an outer cloak or covering for the very tiny flowers that grow on a fleshy spike within. The leaves of the plant appear after the flowers have bloomed. First appearing in April, these large, heart-shaped leaves are very conspicuous on the ground throughout the summer. The unpleasant odor, which probably attracts insects that pollinate the flowers, has given to the plant the name, Skunk Cabbage. It has a beautiful relative in the Calla Lily. Skunk Cabbage belongs to the Arum family, of which Jack-in-the-Pulpit is a member.

A strange fellow to look for in the deep woods is Jack-in-the-Pulpit, "our early preacher." The flower is so called on account of the odd shape of its spathe. This vase-shaped spathe resembles a gothic pulpit. A curved lip extends from one side over the top, forming a canopy for Jack, "the preacher," within. Jack, himself, is the spike inside that bears the tiny flowers packed at its base. The graceful pulpits are green and heavily veined. Sometimes you may find purple ones. "Indian Turnip" is the name often given to our "Jack" because the Indians formerly used the fleshy root, called a corm, for food after boiling out the sharp-tasting juice. They also boiled and ate the red berries, which ripen in clusters on the spike and are a conspicuous sight in the fall woods.

Trillium or Wake-Robin is not out as early as the latter name, Wake-Robin, would imply, for the robins have been with us several weeks before the Trilliums bloom on the shaded borders of woods. Trillium, meaning three, is an appropriate name, because the parts of the flower grow in sets of threes. Three oval-shaped leaves grow in a whorl or circle around the stem of the plant a short distance below the flowers. Three white, pointed petals, pink when older, give the bloom, bending slightly on its thin stem, a star-like appearance. Three green sepals are found back of the petals. Look for the smaller, shorter white Trillium earlier than you do the large white one. Often you may find a Trillium, whose flower is a deep purple, growing directly upon the whorl of leaves, which are splotted with white. This is the sessile species, so called because the flower sits upon the leaves. The Trilliums belong to the Lily family and are often called Wood Lilies because of their fondness for rich woods.

A fragrant and delicate flower found in our rich, damp woods in April, along with the well-known Anemone, is Bloodroot. The firm tip of the curled-up leaf pushes through the soil and opens into a round and deeply lobed one. It discloses the flower-bud that has been safely protected by this leafy covering. Even when the bud opens into a fragile, white blossom, the full-grown leaf partly surrounds the flower stalk as if still wishing to protect the blossom that it once enfolded as a tiny, baby-bud. The beautiful flower has from eight to twelve snowy petals around a yellow center. These petals fall within a few days from opening, as do those of the Poppy, the family to which Bloodroot belongs. If the rootstock of the plant is cut, a thin reddish liquid oozes out. This has given to the plant the name, Bloodroot. The Indians prized the liquid as a paint for decorating their faces and tomahawks.

Formerly our woodlands held an abundance of beautiful wild flowers, such as the four described above. In various ways the flowers were killed out. The chief destruction is wrought by careless and thoughtless people picking great numbers from the woodlands only to have them die immediately upon picking. Dead, the flower is of no use; growing alive, it is performing the important function of forming seeds for the plant. So rare have the Trillium and Bloodroot become in Illinois that a state law now imposes fines upon those found picking these plants.

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MUSEUM STORIES
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CHILDREN

SERIES X
NUMBER NINE

APRIL 20, 1929

FIELD MUSEUM OF NATURAL
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ROOSEVELT ROAD AND LAKE MICHIGAN
CHICAGO

MUSEUM STORIES
FOR
CHILDREN

SERIES X
NUMBER TEN

APRIL 27, 1929

FIELD MUSEUM OF NATURAL
HISTORY
ROOSEVELT ROAD AND LAKE MICHIGAN
CHICAGO

FIELD MUSEUM OF NATURAL HISTORY

In Halls 3 and 4 are many objects used by the various tribes of salmon and cedar Indians. Look for a life-size group of Salish people in their house, a small model of a Kwakiutl house, and a Cowichan loom for weaving mountain goat wool. In Hall 18 you can see salmon, halibut, and other fish mentioned in the story.

STEPHEN C. SIMMS, *Director*

SALMON AND CEDAR INDIANS

Long before the white man came to the Pacific, there were salmon fisheries from the Columbia River northward along the west coast of Oregon, Washington, British Columbia, and southern Alaska. All along that coast are islands, and fiords or inlets formed by narrow and steep river valleys. Back from the shore the land rises abruptly to craggy mountains. It is a rough and rocky, cold and damp country to live in. Chill winds from the sea blow fog and rain clouds over it. Between the mountains and the ocean, about the mouths of rivers or on the islands, wherever outlying islands gave partial shelter from the storm waves, certain Indian tribes made their homes. Like the Norsemen of northwestern Europe, who lived in a somewhat similar country, these Indians were fierce and warlike, and depended on the sea for a living.

The land gave them some help. Berries and roots gathered by the women formed part of their food. Hunters climbed the mountains in search of mountain goats. The flesh of the goats was eaten, their horns were made into spoons, and their wool was woven into clothing.

The most useful gift of the forest was the cedar tree. The Indians made their houses of stone-hewn cedar planks, fastened together (since they had no nails) with cords twisted of cedar bark or with cedar withes. Not only cords were made of the shredded and twisted bark, but, mixed with wool, it was used for clothing. Nets, mats, and baskets, even armor, were made of it, and when beaten and rubbed it was soft enough to be used as towels, and for the padding of babies' cradles. Cedar chests held food, clothing, and other family property. Cedar wood fires warmed the houses, cooked the food, and smoked meat or fish for storage. Many dishes and utensils were made of cedar. People went to sea for the fish that formed their principal food, or to travel from village to village, in canoes of cedar, often of a single huge log, hollowed out and carved at prow and stern with fantastic symbolic designs. No wonder that the Indian women, praying to the spirit of the cedar tree, used to say to it: "There is nothing for which we cannot use you, O long-Life-maker!"

The fishermen in their cedar canoes caught many kinds of fish with nets, hooks and lines, or spears. With weirs and dipnets great numbers of oily candlefish were taken in April. Fat boiled out of candlefish and stored in cedar chests was used in the cooking and flavoring of almost all the food used by these Indians. Lines and spears were used for cod, halibut, and flounders. Salmon was the most important fish of all. Sometimes the fisherman made a long, strong line of bladder-kelp, a kind of seaweed, and went trolling for halibut or silver-side salmon. His hook was a double-pointed bit of bone four inches long. The line was tied near the middle of the piece of bone, and it was baited with a herring. At other times, the Indian went out with a spear for the spring or quinnat salmon.

However, the big time for salmon-fishing came in September and October, when the fish were making their yearly journey upstream. In former times the weir method was most important in salmon-fishing. When the run upstream began, a fence was made across the river. Slender poles were driven close together into the bottom of the stream, and other poles fastened across them. Space was left for the fish to get through only to find themselves in tubular wicker baskets too narrow to turn in, so that there was no escape till they reached the sliding door through which they were removed. Since weir fishing catches all the fish in a stream, leaving none to spawn, it is now forbidden by law. Large, bag-like, nettle-fibre nets were also used to take salmon. Along the lower edge of the mouth of the net, stone sinkers were fastened, and three men in a canoe dragged it downstream until it was full of fish. When fishing was good, a single draft in such a net would fill the largest canoe.

While the men were bringing in great quantities of salmon, the women were busy cooking them for feasts and preserving them for winter use. Some were split, cleaned, rubbed inside and out with fresh leaves, and hung in the sun to dry. When partly dried they were placed on a rack over the fire in the house, and smoked for nine days before being packed away in large baskets or cedar chests. Others were removed from the smoke after one day, packed in a mixture of sand, clay, and grass, and buried in a hole in the ground. Before being cooked, these were washed and soaked overnight, and the Indians said they were "just like fresh salmon."

During the long, cold, winter evenings the people would gather in their cedar houses to feast. With long poles they pushed aside one or two loose roof boards, to let out the smoke, and sitting on low cedar benches around their fires, they would eat stewed fish with oil, using wooden dishes and horn spoons. After the feast they danced strange magic dances, sang songs, and told old stories about their mysterious, dangerous world of mountains, forest, and sea.

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